Atty's 21919 Pat. App. 09/919,338

CLAIM AMENDMENTS

claim 1, (cancelled)

claim 2, (cancelled)

claim 3, (cancelled)

claim 4, (cancelled)

claim 5, (cancelled)

claim 6, (cancelled)

claim 7, (cancelled)

claim 8, (cancelled)

claim 9, (cancelled)

10. (currently amended) An apparatus for measuring a temperature in an electrical apparatus, comprising:

a first glass fiber impressed with a first Bragg grating having a specific first Bragg reflection wavelength λ_{BG1} and positioned at a location in an electrical apparatus at which a temperature is to be measured, whereby the Bragg reflection wavelength λ_{BG1} of said first Bragg grating is shifted as a function of change in said temperature at said location;

a source of broad-band light coupled to said first glass fiber for launching said broad-band light into said first glass fiber;

a second glass fiber impressed with a second Bragg grating having a specific second Bragg reflection wavelength λ_{BG2} different from the specific Bragg reflection wavelength λ_{BG1} of the first Bragg grating;

an optocoupler for coupling said first glass fiber with said second glass fiber so that reflected light from the first Bragg grating is conducted to said second Bragg grating; and

a photodetector coupled to said second glass fiber downstream of said second Bragg grating and receiving nonreflected light from said second Bragg grating, said photodetector having an output voltage dependent upon detected light intensity and representing a measurement of said temperature at said location,

a plurality of said first Bragg gratings being written into said first glass fiber in spaced-apart relationship and positioned at a corresponding number of locations of said electrical apparatus at which temperatures are to be measured, said second Bragg grating having a variable second Bragg reflection wavelength λ_{BG2}, said photodetector comprising a photodiode and a transimpedance amplifier connected to said photodiode, said apparatus, further comprising means for mechanically deforming said second glass fiber in a micrometer range to vary said specific second Bragg reflection wavelength λ_{BG2} of said second glass fiber, said optocoupler having a branch to which a further glass fiber is coupled, said apparatus further comprising means for converting a light signal in said further glass fiber to a voltage, an output signal of said photodetector being normalized to the voltage into which the light signal in said further glass fiber is converted ~~The apparatus defined in claim 5 wherein~~ said photodetector ~~comprises~~ comprising a photodiode and a transimpedance amplifier connected to said photodiode, said apparatus **further comprising means for**

mechanically deforming said second glass fiber in a micrometer range to vary said specific second Bragg reflection wavelength λ_{BG2} of said second glass fiber, said optocoupler having a branch to which a further glass fiber is coupled, said apparatus further comprising means for converting a light signal in said further glass fiber to a voltage, an output signal of said photodetector being normalized to the voltage into which the light signal in said further glass fiber is converted.

Claim 11, (cancelled)

Claim 12, (cancelled)

13. (currently amended) An apparatus for measuring a temperature in an electrical apparatus, comprising:

a first glass fiber impressed with a first Bragg grating having a specific first Bragg reflection wavelength λ_{BG1} and positioned at a location in an electrical apparatus at which a temperature is to be measured, whereby the Bragg reflection wavelength λ_{BG1} of said first Bragg grating is shifted as a function of change in said temperature at said location;

a source of broad-band light coupled to said first glass fiber for launching said broad-band light into said first glass fiber;

a second glass fiber impressed with a second Bragg grating having a specific second Bragg reflection wavelength λ_{BG2}

different from the specific Bragg reflection wavelength λ_{BG1} of the first Bragg grating;

an optocoupler for coupling said first glass fiber with said second glass fiber so that reflected light from the first Bragg grating is conducted to said second Bragg grating; and

a photodetector coupled to said second glass fiber downstream of said second Bragg grating and receiving nonreflected light from said second Bragg grating, said photodetector having an output voltage dependent upon detected light intensity and representing a measurement of said temperature at said location,

a plurality of said first Bragg gratings being written into said first glass fiber in spaced-apart relationship and positioned at a corresponding number of locations of said electrical apparatus at which temperatures are to be measured, said second Bragg grating having a variable second Bragg reflection wavelength λ_{BG1}, said photodetector comprising a photodiode and a transimpedance amplifier connected to said photodiode, said apparatus, further comprising means for mechanically deforming said second glass fiber in a micrometer range to vary said specific second Bragg reflection wavelength λ_{BG2} of said second glass fiber, said optocoupler having a branch to which a further glass fiber is coupled, said apparatus further comprising means for converting a light signal in said further glass fiber to a voltage, an output signal of said photodetector being normalized to the voltage into which the light signal in said further glass fiber is converted ~~The apparatus defined in claim 5~~, said apparatus further comprising

means for mechanically deforming said second glass fiber in a micrometer range to vary said specific second Bragg reflection wavelength λ_{BG2} of said second glass fiber, wherein said optocoupler having a branch to which a further glass fiber is coupled, said apparatus further comprising means for converting a light signal in said further glass fiber to a voltage, an output signal of said photodetector being normalized to the voltage into which the light signal in said further glass fiber is converted.

Claim 14, cancelled.

15. (currently amended) An apparatus for measuring a temperature in an electrical apparatus, comprising:

a first glass fiber impressed with a first Bragg grating having a specific first Bragg reflection wavelength λ_{BG1} and positioned at a location in an electrical apparatus at which a temperature is to be measured, whereby the Bragg reflection wavelength λ_{BG1} of said first Bragg grating is shifted as a function of change in said temperature at said location;

a source of broad-band light coupled to said first glass fiber for launching said broad-band light into said first glass fiber;

a second glass fiber impressed with a second Bragg grating having a specific second Bragg reflection wavelength λ_{BG2} different from the specific Bragg reflection wavelength λ_{BG1} of the first Bragg grating;

an optocoupler for coupling said first glass fiber with said second glass fiber so that reflected light from the first Bragg grating is conducted to said second Bragg grating; and

a photodetector coupled to said second glass fiber downstream of said second Bragg grating and receiving nonreflected light from said second Bragg grating, said photodetector having an output voltage dependent upon detected light intensity and representing a measurement of said temperature at said location,

a plurality of said first Bragg gratings being written into said first glass fiber in spaced-apart relationship and positioned at a corresponding number of locations of said electrical apparatus at which temperatures are to be measured, said second Bragg grating having a variable second Bragg reflection wavelength λ_{BG2}, said photodetector comprising a photodiode and a transimpedance amplifier connected to said photodiode, said apparatus, further comprising means for mechanically deforming said second glass fiber in a micrometer range to vary said specific second Bragg reflection wavelength λ_{BG2} of said second glass fiber, said optocoupler having a branch to which a further glass fiber is coupled, said apparatus further comprising means for converting a light signal in said further glass fiber to a voltage, an output signal of said photodetector being normalized to the voltage into which the light signal in said further glass fiber is converted,

~~The apparatus defined in claim 5 wherein~~ said optocoupler ~~has~~ having a branch to which a further glass fiber is coupled, said apparatus further comprising means for converting a light signal in

said further glass fiber to a voltage, an output signal of said photodetector being normalized to the voltage into which the light signal in said further glass fiber is converted.